

PROJECT

## AKR-Evaluierung

### Evaluation of the procedures in AT and DE to avoid a damaging AKR on concrete carriageways

### *Evaluierung der Vorgehensweisen in AT und DE zur Vermeidung einer schädigenden AKR auf Betonfahrbahnen*

**Funding:** National (Austria)

**Duration:** Oct 2016 - Jul 2018

**Status:** Complete



#### Background & policy context:

Motivated by the continuously increasing traffic most highways are currently constructed as rigid pavements using concrete as the load-carrying material. The main advantage of rigid pavements in comparison to alternative pavement constructions (such as, e.g., flexible pavements) is found in the significantly longer service life even in case of high loading. However, recently, wrongly chosen raw materials resulted in pavement damage accompanied by a significant reduction of service life. Hereby, in most cases as the chemical reaction between silica within the aggregates and alkali hydroxide within the pore solution of concrete, the so-called alkali-silica-reaction (AKR), was identified as the source of damage.

#### Objectives:

Within the present project, the different approaches to avoid the aforementioned damage due to alkali-silica-reaction used in Austria and Germany shall be analysed. This comprises a comprehensive investigation in both countries, followed by the design of a common concept and approach for avoiding damaging alkali-silica-reaction in the future. This concept shall be employed in the course of modifying standards at the European scale, having established a common approach in Austria and Germany. Additionally, the underlying test methods employed in both countries shall be assessed.

For this purpose, identical aggregates shall be analysed within the project, with the obtained results providing the basis for the development of an alternative rapid testing method as well as for modelling of the underlying chemical processes. As regards the latter, modelling shall finally pave the way to a prediction tool allowing the proper assessment of the AKR risk of aggregates. The anticipated results of the present project shall lead to an enhancement of the service-life of rigid pavements by avoiding the damaging AKR. Accordingly, both the ecological and economic benefits shall increase when using rigid pavement in highway design.

#### Parent Programmes:

[MOTF - Mobility of the Future](#)

**Institute type:** Public institution

**Institute name:** FFG - Die Österreichische Forschungsförderungsgesellschaft

**Funding type:** Public (national/regional/local)

**Other programmes:** DACH VIF 2016 - Innovative Betontechnologie im Straßenbau

#### Lead Organisation:

**Universität Innsbruck Institut Für Konstruktion Und Materialwissenschaften**

**Address:**

Innrain 52  
6020 Innsbruck  
Austria

## Partner Organisations:

### Materialforschungs- Und -Prufanstalt An Der Bauhaus-Universitat Weimar

**Address:**

Coudraystraße 9  
99423 Weimar  
Germany

### Poyry Infra Gmbh

**Address:**

Strubergasse 30  
5020 Salzburg  
Austria

## Technologies:

Infrastructure management  
Structural assessment of pavement constructions

**Development phase:** Research/Invention

**STRIA Roadmaps:** Infrastructure

**Transport mode:** Multimodal transport

**Transport sectors:** Passenger transport, Freight transport

**Transport policies:** Other specified

**Geo-spatial type:** Network corridors